

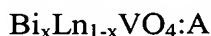
**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1 (currently amended) A light emitting GaN based device, comprising:  
a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm; ~~and~~

a blue phosphor; and  
a red phosphor having the formula:



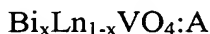
where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.

2 (original) The device of claim 1 in which the red phosphor absorbs light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm.

3 (canceled)

4 (canceled)

5 (currently amended) The device of claim 30 in which said red phosphor has the formula:



where  $x = 0$  to 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an  $\text{Tb}^{3+}$  and at least one activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof.

6 (original) The device of claim 5 in which x is greater than 0 and less than 1.

7 (original) The device of claim 6 in which x is 0.05 to 0.5.

8 (canceled)

9 (previously presented) The device of claim 29 in which the semiconductor device is a GaN based device.

10 (original) The device of claim 1 in which the semiconductor device is a vertical cavity surface emitting laser, a light emitting diode, or a laser diode.

11 (previously presented) The device of claim 29 in which the semiconductor device is a GaN based device.

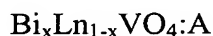
12 (original) The device of claim 11 in which the semiconductor device is a light emitting diode.

13 (canceled)

14 (original) A light emitting semiconductor device, comprising:

a GaN based light emitting diode that emits light having a wavelength in the range of 200 nm to 620 nm;

a red phosphor that absorbs light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant;

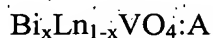
a green phosphor; and

a blue phosphor.

15 (original) The device of claim 14 including  $\text{Tb}^{3+}$  as a co-dopant.

16 (previously presented) The device of claim 14 in which said green phosphor is  $\text{ZnS}:(\text{Cu}^+, \text{Al}^{3+})$  and said blue phosphor is  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ .

17 (previously presented) A white light emitting phosphor combination, comprising:  
a red phosphor having the formula:



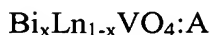
where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  or  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant;

a green phosphor; and

a blue phosphor.

18 (original) The phosphor combination of claim 17 in which said red phosphor absorbs light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm.

19 (currently amended ) The phosphor combination of claim 31 in which said red phosphor has the formula:



where  $x = 0$  to 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an  $\text{Tb}^{3+}$  and at least one activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.

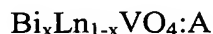
20 (original) The phosphor combination of claim 19 in which x is greater than 0 and less than 1.

21 (original) The phosphor combination of claim 20 in which x is 0.05 to 0.5.

22 (canceled)

23 (previously presented) The phosphor combination of claim 17 in which said green phosphor is  $\text{ZnS}:(\text{Cu}^+, \text{Al}^{3+})$  and said blue phosphor is  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$  suitable for use in a GaN based device..

24 (previously presented) A white light emitting phosphor combination,  
a red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



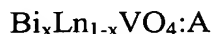
where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.;

a green phosphor comprising  $\text{ZnS}:(\text{Cu}^+, \text{Al}^{3+})$ ; and

a blue phosphor comprising  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ .

25 (original) The phosphor combination of claim 24 in which said red phosphor includes  $\text{Tb}^{3+}$  as a co-dopant.

26 (previously presented) A red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:

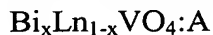


where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.

27 (currently amended) The phosphor of claim 32 in which x is 0.05 to 0.5.

28 (currently amended) The phosphor of claim 26 in which in which said red phosphor includes  $\text{Tb}^{3+}$  as a co-dopant.

29 (previously presented) A light emitting device, comprising:  
a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm; and  
a red phosphor having the formula:



where x is 0.05 to 0.5, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.

30 (previously presented) A light emitting device, comprising:

a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm; and

a red phosphor comprising a vanadate combined with yttrium, gadolinium and/or lanthanum and activated with trivalent  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  or  $\text{Pr}^{3+}$ , or any combination thereof, with  $\text{Tb}^{3+}$  as a co-dopant.

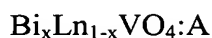
31 (previously presented) A white light emitting phosphor combination, comprising:

a red phosphor comprising a vanadate combined with yttrium, gadolinium and/or lanthanum and activated with trivalent  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with  $\text{Tb}^{3+}$  as a co-dopant;

a green phosphor; and

a blue phosphor.

32 (previously presented) A red phosphor that absorbs said light of a wavelength in the range of 240 nm to 550 nm and emits red light at a wavelength in the range of 580 nm to 700 nm, having the formula:



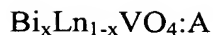
where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with  $\text{Tb}^{3+}$  as a co-dopant.

33 (new) A light emitting GaN based device, comprising:

a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm;

a green phosphor and a blue phosphor; and

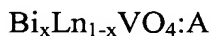
a red phosphor having the formula:



where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant.

34 (new)      A light emitting GaN based device, comprising:  
a semiconductor device that emits light having a wavelength in the range of 200 nm to 620 nm;

a red phosphor having the formula:



where x is greater than 0 and less than 1, Ln is an element selected from the group consisting of Y, La and Gd, and A is an activator selected from  $\text{Eu}^{3+}$ ,  $\text{Sm}^{3+}$  and  $\text{Pr}^{3+}$ , or any combination thereof, with or without  $\text{Tb}^{3+}$  as a co-dopant;

a green phosphor having the formula:  $\text{ZnS}:(\text{Cu}^+, \text{Al}^{3+})$ ; and

a blue phosphor having the formula:  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ .